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A MALNUTRITION CLINIC AS A UNIVERSITY PROBLEM IN APPLIED DIETARIES[1]

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A year's work with malnourished children in coöperation with pediatricians in the dispensary had shown that the problem of bringing these underweight children up to normal was largely one of diet. Experience in teaching university classes in home economics had likewise shown that work in dietaries would be much more vital if taught in connection with some actual human need for the work. Such a need, without a doubt, the dispensary children furnished. It was decided, therefore, to offer work in a malnutrition clinic as a university course in applied dietaries. A small group of advanced students, having a good scientific foundation of physiology, nutrition, food preparation, marketing, and dietaries, enrolled in the course.

A number of underweight children were selected from ones who had already been in the dispensary a few times and showed need of intensive work. Others were referred to the class by the pediatricians as they were found in the clinics. The conduct of the class was very similar to that described by Dr. Emerson[2] and Dr. Smith.[3] It differed, however, in that it was conducted, not by a physician, but by "diet specialists,"

[1] The work was done in the Central Free Dispensary of Rush Medical College.

[2] Class Method in Dietetic and Hygienic Treatment of Delicate Children. Emerson. Pediatrics, 22 (1910), p. 627.

[3] Methods of Conducting a Class for Malnourished Children. Chas. Hendie Smith, M.D. Amer. Jour. Dis. Chil. 15 (1918), p. 373.

who, as it happened, were teachers of children as well. This does not mean, of course, that the work was done independently of the physician; it was merely a division of labor. The children were all given thorough examination and all necessary medical treatment by the physicians, who then referred the ones in need of dietary help to the diet specialists, exactly as eye and ear cases were turned over to their respective clinics. The ones in need of medical supervision reported to the physician each week before coming to the diet class, others with nothing at fault but diet and hygiene came directly to the class. The children met once a week on Saturday mornings. No attempt was made to secure a large group, since intensive rather than extensive work was desired.

Each student was given at least two or three cases as her special responsibility. Her first duty on a new case was to ascertain the child's height, weight, and habits of diet and hygiene. She then plotted his weight chart, explained its significance to him and to his mother, and gave dietetic and hygienic advice based on her findings. This was merely the beginning, however, for the case was her problem and she was expected to find its full solution. She must determine all the symptoms of malnutrition present, find out all the causes, specific and remote, which were responsible for the condition, and do everything which might be necessary to remove these causes and produce a gain. This required, first of all, a visit to the home to find out all conditions under which the child lived. It meant planning an adequate diet which should vary as little as possible from the family's customary one, and which should cost well within the family's means. Often a survey of the markets in the neighborhood was necessary to learn the kinds and qualities of goods and their prices, in order to help the mother make her limited purse cover the cost of adequate food. The mothers needed to be taught how to prepare foods and the children persuaded to eat them. In almost every instance the worker found she must supplement to a great extent the lack of parental control in matters of sleep, rest, and habits of eating.

At the clinic the student took special charge of her own cases, listened to the discussion of the others, and helped prepare food exhibits, diet slips, and recipes needed in the class. She made at least one home visit each week, saw that the child attended clinic regularly, and was held personally responsible if he lost or failed to gain. She kept a complete record of the case, and at the end submitted a written report analyzing and summarizing the findings and results of her work according to a

prescribed outline. The following cases with their accompanying charts will show the type of work done and the results obtained.

Chart I shows the effect of three weeks intensive treatment on a family of three children aged six, nine, and eleven years. The cases were very interesting, as they showed practically every symptom of malnutrition. All were much underweight—9, 16, and 11½ pounds, or about 20, 24, and 17%, respectively. In appearance they were emaciated, anemic, and of an earthy color. They had "winged" shoulders, narrow chests, flabby muscles and skins, and dark hollows under the eyes. They were extremely irritable and finicky about their food. They were always tired, did not care to play with other children, and had no power of concentration; the expression of their faces was lifeless and dull. They lacked, in short, every characteristic of normal children. The physicians found nothing clinically wrong with any of them; so they were turned over to the diet class for treatment.

The student to whose lot these children fell heaved a sigh at the thought of the undertaking; for there remained but three weeks in which to work, and to hope to accomplish much on such extreme cases in so short a time seemed out of the question. She attacked the case with extra vigor, however, being determined to win if any amount of time and labor of hers could accomplish it.

At the beginning she made visits to the home every second day, arriving before breakfast and staying till after lunch in order to help prepare the meals and see that the children ate them—a thing the mother was utterly powerless to do. It was this inability of the mother to control her children which was one of the chief causes of their condition. They ate what and when they pleased and slept only when nature forced them to. In addition to her lack of home control, the mother was totally ignorant of the food needs of children, as well as of American foods and methods of cooking. Poverty was not a factor. The father earned good wages and was able and willing to buy what his family needed.

The diet of the children was deficient both in quality and quantity They had scarcely any milk, no cereals, no meat, no butter, and practically no fruits nor vegetables. They ate "cakes," "polly seeds," much candy, potatoes, some sort of dried fish, and tomatoes occasionally. A liberal estimate of the fuel value of the day's diet (exclusive of candy) was 500 calories. Combined with the inadequacy of food there were hurried meals, lack of exercise, and insufficient sleep. The children were in such a subnormal condition from long continued underfeeding that

they were with great difficulty and only very gradually coaxed, urged, tempted, and bribed into taking suitable food in sufficient amounts. It was necessary almost literally to "camp on the job" at first. When the children began to gain, however, the father became interested, assumed some of the responsibility, and forced the mother to do the same.

The results of the three weeks' treatment were that the children had gained 5, 4, and 4½ pounds, respectively; they were much improved in color, and markedly so in disposition; they were less finicky about foods, and were eating good breakfasts and a full day's diet quite willingly with little candy and cakes between meals. A comparison of diets estimated at the beginning and at the end shows most strikingly the changes in this respect.

DIET AT THE BEGINNING		DIET AT THE END OF THREE WEEKS	
	calories		*calories*
Breakfast—		*Breakfast*—	
None. (Ate cake and candy during the morning)		Prunes	100
		Oatmeal	175
		Sugar	25
		Butter	100
		Cream	100
		Milk	150
			650
Dinner—		*Dinner*—	
Potato	50	Stew	
Fish	50	Meat	200
Fruit	50	Potatoes	25
	150	Rice	75
		Milk and cream	200
(Candy and cakes and polly seeds during the afternoon)		Fruit	50
			550
Supper—		*Supper*—	
Tomato	50	Potatoes	150
Soup	100	Egg	75
Cakes	200	Butter	100
	350	Tomatoes	50
		Milk and cream	200
			575
Total for the day (not including candy eaten between meals)	500	Total for the day	1775

CHART I

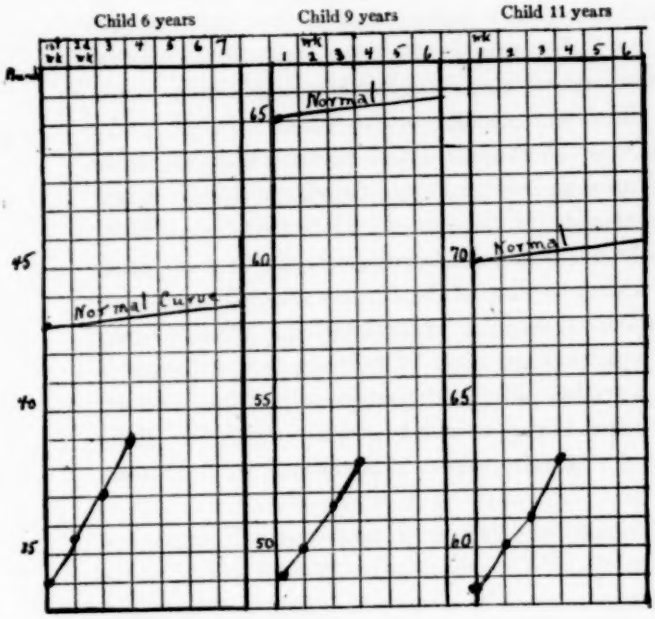


CHART II

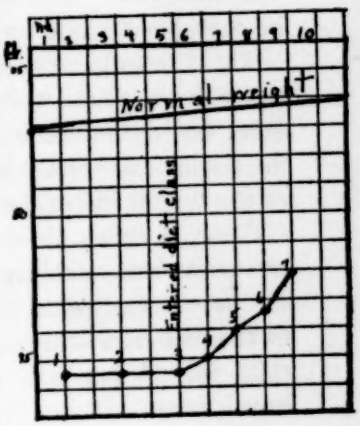


CHART III

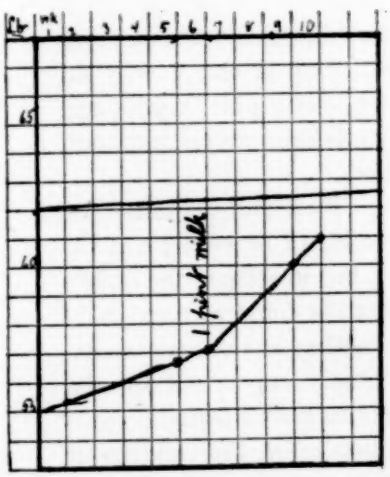
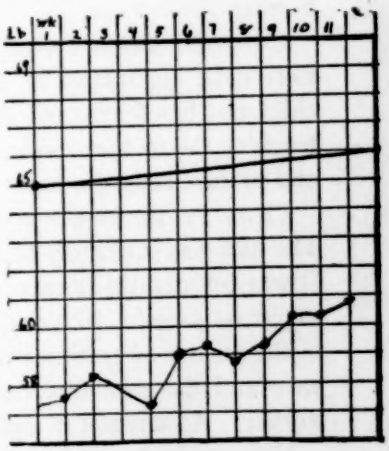


CHART IV



To be sure, much remained to be done, and the cases should have been under supervision for a longer time. A beginning had been made, however; the mother now knew something of what to feed children and how to prepare it, and the father promised to see that the treatment was continued. The improvement in the children's disposition alone, he considered, made any effort and expense worth while.

These cases have been reported thus in detail because they illustrate many of the points which arise in the handling of such children. A few other cases which show special points will be mentioned briefly. Other interesting cases could be given, but these few are enough to show some of the typical difficulties encountered and the results secured.

Chart II shows the improvement in a 12 year old girl when dietary treatment was combined with medical care. Up to the point marked 3 she was under medical supervision only. At that point she was referred to the diet class and her curve began to move steadily upwards. This child was 11 per cent under weight and was troubled with chronic constipation.

Insufficient food, both in kind and amount, combined with worrying over schoolwork and sitting up till 11 o'clock to do "home work," were the determining causes in this case. The child was very responsive and intelligent and took the responsibility of her own case. She had gained 3½ pounds in four weeks, was eating enough food of the right kind, was putting herself faithfully to bed at 9 o'clock, and her bowels were almost normal.

Chart III shows a comparatively easy case. Ignorance and poverty were both big factors in causing the undernutrition in this 8 year old child and her 6 year old sister. Adding to the diet a pint of milk and teaching the mother the value of some cheap foods like oatmeal, potatoes, and prunes, caused a rapid gain in both children.

Chart IV shows the relation between sleep, diet, and malnutrition. The diet was extremely faulty and the bedtime 11, 12, or even 1 o'clock. It was comparatively easy to improve the diet, but in spite of the child's eagerness to gain, 10 o'clock was about the best she could manage to do in the matter of getting herself to bed. The mother was of little assistance and the case was too far away to be closely supervised by the worker. As a result it took the child 10 weeks to gain 3 pounds.

More could be said concerning the instruction given the children in the class,—for a little informal series of lessons on children's foods with exhibits and simple demonstrations was given, together with talks on

sleep, hygiene, and general health problems. On the last day when a general review was given to find out (as it was explained to the children) whether they would now be able to take care of themselves, they passed a very creditable examination.

So much for the benefit of the nutrition class to the children. How about its value to the university students? It is unfortunate that there is no graphic method of plotting their gains such as was possible with those of the children, for the results would undoubtedly be quite as startling. Aside from the new knowledge gained of malnutrition itself, of the relation between diet and health, and especially of the intimate connection between diet and the various other factors of living, the work demanded the reorganization and use for a specific purpose of much of the material of previous courses in nutrition, cooking, marketing, and dietaries. Making a minimum cost diet for a real child, desperately in need of help, was quite a different problem from sitting in a classroom and planning one for an imaginary child.

Nor must we forget that these students are teachers going out to work in the public schools of the country. When we consider the large number of malnourished children in the schools, as shown by recent investigations,[4] it is a satisfaction to realize that any students who have done this practical work with children can never become mere teachers of cooking or abstract dietetics. They will not only be able to recognize such children in their classes and throughout the school, but can hardly fail to add to their teaching the task of improving the nutrition of the children with whom they come in contact.

[4] Malnutrition in Children. Weekly Bulletin of Dept. of Health, City of N. Y., 6 (1918), p. 75.

OUTLINES ON CHILD CARE

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Children's Bureau, United States Department of Labor

As a part of the Children's Year Program, Miss Lathrop advocated the promotion of school, college, and extension courses in child care, so that it was particularly gratifying when the Federal Board for Vocational Education asked the Children's Bureau to coöperate with them in the preparation of outlines for a college course on Child Care and Child Welfare.

Last June, fifty tentative topics for outlines for such a course were presented at the meeting of the American Home Economics Association in Chicago. This venture is part of the vocational education plan to train teachers to teach infant hygiene in high schools, but it is hoped that the outlines may possibly have a wider application. In some of our leading colleges and universities, a similar course, or parts of such a course, is already being given with most gratifying results. Our aim in the preparation of this course is to standardize the teaching of child care, and to have the presentation of child welfare cover all the important phases of childhood.

A number of these outlines, those dealing with the mother and with the special child, have been finished, and work on other sections is under way. It has been thought necessary to include in the outlines considerable informative material for the use of the teacher, material of which she should be cognizant before attempting to give such a course or to supervise its presentation, but which would probably be unwise to put in the hands of individual pupils. Thus, in a way, the outlines with the reading references which accompany them will form a text-book for the use of college teachers, rather than a skeleton outline of lectures to be delivered to a class.

Lest there be confusion in the teacher's mind as to just what should be included in the material presented to the class, thirty topics for a semester course have also been prepared. Material from several outlines may be used in the preparation of a single topic. The Children's Bureau is anxious to have the reaction of teachers of home economics on the scope of this course. It includes, as it now stands, the whole subject of the child, any part of which could be enlarged and given more fully, if desired. Much of it, especially the nutrition of the child, is alreadv

given in other courses. There are obvious advantages in presenting the subject of childhood as a whole, and there is obvious need for informing the teacher, who is to present the subject of infant and child hygiene to the young girl, of the health problems of the school and of the physical and mental changes of adolescence.

A comprehensive bibliography will accompany the complete set of outlines, with page references to the different subjects.

The Federal Board for Vocational Education is preparing to send out immediately to departments of home economics the ten completed outlines, and the suggested topics for a semester course on the child, in order to have the benefit of the criticism and advice of those who are to give the course.

In the preparation of the other outlines, we are especially anxious to know if this material seems of value to the teacher, or whether a skeleton outline of the proposed thirty lectures on the child would be more useful.

Communications should be addressed to Dr. Dorothy Reed Mendenhall, The Children' Bureau, Department of Labor, Washington, D. C.

THE CHILD

Thirty Suggested Topics for a College Course in Home Economics

1. The Preparation for Motherhood. The Rights of the Child. 2. The Expectant Mother and Prenatal Care. 3. Preparation for Confinement and Birth of the Baby (may be omitted). 4. The Lying-in Period. First Care of the Baby. 5. The Nursing Period. 6. Substitutes for Mother's Milk, Cow's Milk, and Proprietary Foods. 7. Artificial Feeding of the Infant. The Modification of Milk. 8. Feeding the First Two Years. 9. Infant Care. General Hygiene. 10. The Bath. Clothing. 11. Environment—Housing, Nursery, Furnishing, and Equipment. 12. Normal Physical Growth and Development in Infancy. 13. Mental Growth in Infancy and Training. 14. Care and Feeding of the Pre-School Child. 15. The Special Senses and Teeth. General Hygiene. 16. Prevention and Correction of Physical Defects. 17. The Value of Play in Childhood. 18. Nutrition and Care of the School Child. 19. School Hygiene and Medical Inspection. 20. Infectious Disease and its Result. 21. Children's Diseases—the Eruptive Fevers, Whooping Cough, Mumps. 22. Psychology of Childhood and Methods of Child Training. 23. The Unusual Child. 24. Sex Instruction and Hygiene. 25. Physical Growth and Development at Puberty. 26 The Adolescent Period and Vocational Guidance. 27. The State and the Special Child. 28. Rural Health Problems and the Rural School. 29. General

Neglect of Maternity and Infancy. Maternal and Infant Mortality. Birth Registration. 30. Child Welfare Agencies. The Public Protection of Maternity and Infancy.

Proposed Topics for Outlines on Child Care and Child Welfare for the Use of Teachers of Home Economics in Colleges

Introduction. I, II, and III. Health Problems of Mother and Child. IV. Child Mentality and Management. V. Recreation and Physical Training. VI. Child Labor. VII. Children in Need of Special Care.

I–III. *Health Problems of Mother and Child.*

The Child: General Considerations. Society and the child. The home and the child. Parenthood: the greatest of all human responsibilities. Possibilities of the child. Rights of the child. The state and the child.

Birth Registration. Registration area for births. Birth registration laws. Registration area for deaths. Importance of complete and accurate registration of vital statistics. Importance of birth registration. Birth registration test. Significant facts shown by statistics. Infant mortality.

Prenatal Care. Maternal mortality. Underlying causes of maternal mortality. Relation of infant mortality and maternal care. Prevention of maternal mortality and infant mortality. Hygiene of the expectant mother. Value of prenatal care. Signs of pregnancy. Duration of pregnancy. Public protection of maternity and early infancy.

Disorders and Dangers of Pregnancy. Disturbances of digestion. Disturbances of elimination. Other disturbances. Pressure symptoms. Fallacy of maternal impressions. Miscarriage. Auto-intoxication or toxemia. Child-bed fever.

Confinement. Necessary attendants. Places of confinement. Necessary supplies. Preparation for confinement. Labor. Course of labor. After labor. Birth emergencies.

The Lying-in Period. Necessity for rest in bed. Duration of needed rest after confinement. Physiological changes during puerperium. Care of the mother during puerperium. Care of the newborn infant.

The Nursing Period. Function of lactation. The mammary gland. Establishing lactation. Woman's milk. Hygiene of the nursing mother. Technic of nursing. Difficulties in breast feeding. Conditions causing disturbances in lactation. The feeding interval. Amount of milk taken at a single feeding and the total 24-hour intake. Nursing routine. Indications for taking infant from breast. Weaning.

Substitutes for Mother's Milk. Wet nursing. Cow's milk. Relative composition and digestibility. Dangers of milk. Pasteurization. The question of proprietary foods. Mortality among breast-fed and bottle-fed children. Legal protection for expectant and nursing mothers.

Artificial Feeding of Infant. Dilution of cow's milk. Whole milk versus cream mixtures. The use of carbohydrates. Preparing the food. Equipment. Care of utensils, bottles, and nipples. Amount of food. Interval.

The Care of the Infant. The home surroundings. The nursery. Nursery furniture. Bathing. Clothing. Sleep. Fresh air and ventilation. Play and exercise. Feeding the infant. Training rectum and bladder. Daily schedule. Essential health habits.

Normal Development of the Child. At birth. During infancy and childhood. Special senses. Curve of weight and height. Annual increment of growth. Characteristics of health. The unusual child.

Care and Feeding of the Child of Preschool Age. The neglected period. Governmental responsibility. Intelligent home care. Regular meals. Adequate diet. High death rate from infectious diseases during this period. Cause and prevention of remediable defects. Day nurseries. Nursery schools. Children's health conferences.

Nutrition of the Older Child. Differences in diet of the adult and the child. Amount of food needed. Essential foods. Proper food habits. Planning the meals. Danger of inadequate diet in the growth period. The hot school lunch. Treatment of under nourished children. The midmorning meal. Nutrition clinics.

Educational Hygiene. History and present status. Administration. The building. Hygiene of the child. Hygiene of the teacher. Medical inspection and the school nurse.

The Hygiene of the Special Senses and the Teeth. The function and care of the eye, ear, nose, and throat. Mouth breathing, and the danger of insufficient oxidation. Adenoids—cause, prevention, and treatment. The common cold. Diseased tonsils. Ear infections. The effect on growth and health of focal infections. Teeth.

Infectious Diseases. Great menace to childhood. Direct and indirect transmission. Symptoms of disease. Outline of care of patient. Discussion of diphtheria, tuberculosis, poliomyelitis.

Children's Diseases. The eruptive fevers, whooping cough, and mumps. Community and state control of communicable diseases. The necessity of individual coöperation.

Puberty and Adolescence. Structural changes. Functional changes. Mental changes. Disorders and dangers. Sex instruction. Hygiene of puberty. Protection of adolescence.

Housing and Income. Relation of family income to morbidity and mortality. Further effects of low income on child welfare. Minimum family income. The home and the child. Housing standards and legislation.

Rural Health Problems. Discussion of the high death rate at birth and the large percentage of remediable defects in rural school children. Isolation versus overcrowding of the city. Individual responsibility. Necessary education as to sanitation, disposal of waste, milk and water supply, health habits, and food. Medical inspection and the school nurse for rural schools.

Public Activities to Protect Maternity and Infancy. Federal, state, and municipal public health measures. Bureaus of maternal and infant hygiene. The public health nurse and her possibilities. Consultation centers for mothers and children. Other proposed measures for adequate protection for child life.

IV. *Child Mentality and Management.*

The Mental Development of Infancy. Study of the equipment with which a normal baby comes into the world and what it acquires from month to month—the development of an infant's perceptions and motor-coördinations. The means which should be provided to give the proper range of experience during this period.

The Psychology of Childhood and Methods of Child Training. The mental capacities and the normal interests of children of each age, from one year up to twelve. Methods of training explained as based upon a knowledge of a child's interests and capacities.

The Psychology of Adolescence and Vocational Guidance. The change of outlook and interest characteristic of the adolescent period and the use which should be made of this enlarged social outlook in helping a child to form plans for his own future.

Abnormalities of Mental Development and the Training of Exceptional Children. The characteristics of the defective child, the permanently retarded child, the temporarily retarded child, and the very superior child. Suggestions as to the type of training suitable to each.

The Relation of Mental Development to Moral Problems. The way in which moral delinquency may occur in case a child's mental development is either too poor or too good for the educational program assigned him. The instances in which apparent moral delinquency is mere mental deficiency. The type of delinquency in normal children which is due to mental conflict.

Management.

V. *Recreation and Physical Training.*

Philosophy and Theory of Play. Applied to children.

Nature of Play. Types of play. Leisure-time activities that instinct and social life have developed.

Modern Recreation. I. The rise of movements for group diversions. Group play for the young. Organized athletics. Organized dancing, drama, etc. The Boy Scout movement, history and meaning. Similar work among girls. The new faith in the mimic arts as recreative and socially valuable. *II.* The playground movement.

Relation of Socialized Play to Modern Industrial Life. Modern standards of play.

Physical Training.

VI. *Child Labor.*

History of Movement for Regulation and Prohibition.

Social Waste of Child Labor: Physical Deterioration, Poverty, Delinquency, Dependency.

Present Extent of Child Labor. Standardized Child Labor Legislation. Administration of Child Labor Laws. Industrial Education and Vocational Direction. Special Problems of Child Labor.

VII. *Children in Need of Special Care.*

Causes and Prevention of Child Dependency and Neglect. Lack of normal home. Inadequate family income. Parental neglect. Supplying means of livelihood to families whose breadwinners are absent or incapacitated. Adequate family incomes. Enforcement of parental responsibility and prevention of neglect.

Causes and Prevention of Juvenile Delinquency. Environmental. Physical and mental. Premature employment or employment under morally detrimental conditions. The spirit of adventure and the lack of opportunity for wholesome recreation. Maintenance and improvement of family standards. Community and civic betterment. Provision for discovery and treatment of physical and mental abnormalities and defects. Enforcement of compulsory education laws and child labor laws. Prohibition of premature or detrimental labor.

The Care of Dependent, Neglected, and Delinquent Children. Types of provision. Systems of care. History of the juvenile court movement. Jurisdiction—delinquent, dependent, and neglected children, adults involved, mothers' pensions. Organization. Fundamental principles. The probation system. Training schools and reformatories.

Children Handicapped Physically or Mentally. Causes of physical and mental defects. Types. Treatment.

Community Organization for Child Helping Work. National, state, and local. Work of state and community in which this course is given.

THE USE OF DESICCATED EGGS

LOIS LHAMON

Laboratory of Experimental Cookery, University of Missouri

One vital problem which confronts us at present is that of maintaining a food supply, adequate as to kind and amount. This study of the preparation, composition, and use of desiccated or dried eggs is presented here in the hope that it may help to make known a comparatively new food product, and suggest ways in which it may be used.

Eggs, which have for so long been a staple article of food, frequently command prices out of proportion to their nutritive value. However it is not possible to judge them too closely on this basis alone, since because of peculiar characteristics they are valuable in the preparation of a great variety of foods, and are considered more or less indispensable. If a less expensive product can be substituted for at least a part of the fresh eggs used, without loss of nutritive value, a great saving may be effected.

In the commercial handling of eggs there is a tremendous loss due to decomposition, and to wastage of the so-called "cracks." The extent of the loss is shown by the following figures.[1] The value of poultry and eggs produced in the United States exceeds $620,000,000 a year, 60 per cent of which represents the value of the eggs alone. In the marketing of these, 17 per cent are lost, due to broken, dirty, heated, shrunken, rotten, and moldy eggs. This 17 per cent loss, interpreted in money, amounts to $65,240,000 annually.

Recently, methods have been devised for the preservation of some of these eggs which would otherwise be a complete loss. The two methods least open to criticism are freezing or desiccation after removal from the shell. Freezing is used quite extensively, but the resulting product is bulky, difficult to ship and impracticable for home use, in which we are most interested. Desiccation gives a product which is easily handled, both commercially and in the home, and is the more satisfactory of the two processes. It seems unnecessary to say here that several of the above mentioned classes of eggs are unfit for human consumption, and that there is no sort of treatment which will render them desirable. However 7 per cent of the 17 per cent loss as stated above is due to

[1] Improvement of the Farm Egg. H. M. Lamon and C. L. Apperman, U. S. Dept. of Agr., Bur. of Animal Industry, Bul. 141.

broken and shrunken eggs.[2] It is the broken eggs, commercially known as "checks" or "cracks," and the shrunken or "held" eggs for which desiccation is practicable. By the utilization of this 7 per cent there would result an annual saving of $4,400,000, as well as the saving of a large amount of wholesome food material.

Preparation of Desiccated Eggs. The commercial desiccation of eggs is described by Stiles and Bates, who made an extensive study of the process and product.[3] The egg breaking season is from April 1 to October 1, the bulk of it being done in June and July. In a large establishment the eggs are graded by candling, and classified; and those to be used for drying are broken with a knife blade or on the edge of a metal cup, and the contents put in a vessel according to the grade of the egg. The egg material thus obtained is mixed, strained, and again mixed by a mechanical device, and is then ready for drying. There are two methods most used at present, either of which is satisfactory. By the instantaneous method, the eggs are sprayed into a heated chamber at a temperature of about 70°C. where they are immediately reduced to a fine powder. When the belt method is used, the egg material is dried on an endless belt made of zinc or of galvanized iron. Several factors affect the rate of drying in this process: the temperature, usually about 60°C, the length of the belt, and the rate of its revolution. One layer of egg, a thin film over the entire belt, is usually dried in one revolution. After drying several films in this way, the dried material is removed and placed in a finisher, where it is further dried at 37–40° for two or three hours. The product obtained by this process is very satisfactory from the sanitary point of view, and is more readily soluble than that prepared by the instantaneous method.

Healthfulness of Desiccated Eggs. As may be readily seen, there are possibilities of adulteration of the product by the addition of foreign substances, or by including eggs unfit for food. However, supervision by health officials has been put into effect so that a satisfactory product may be obtained. Dried eggs are frequently objected to on the ground that their bacterial content is so great as to render them unfit for food. Maurer discusses in detail the bacterial content of desiccated eggs in relation to their effect upon health, and his conclusions may be given

[2] Egg Trade of the U. S. M. H. Hastings, U. S. Dept. of Agr., Bur. of Animal Industry, Cir. 140.

[3] Bacteriological Study of Shell Frozen and Desiccated Eggs. G. W. Stiles and C. Bates, U. S. Dept. of Agr., Bur. of Chemistry, Bul. 158.

here.[4] He states that there is little or no danger to the consumer from poisonous decomposition products brought about by non-specific (putrefactive) bacteria. The specific, pathogenic bacteria present in desiccated eggs seem, at first, highly objectionable; yet, when we consider that the product is used entirely for cooking and baking at a temperature high enough to kill the organisms, it appears that danger of infection is less than from shell eggs taken as soft cooked, poached, or raw, which have not been subjected to a temperature high enough to destroy any bacteria present on the shells or in the eggs.

In connection with the healthfulness of desiccated eggs a word should be said concerning the vitamines contained. That both groups of these substances are present is shown by the experimental work of McCollum and Davis. A diet consisting of 80 per cent polished rice and 20 per cent desiccated eggs fed to rats gave "excellent growth and reproduction. This shows that the egg contains both fat and water soluble accessories."[5] This is what one would expect since fresh eggs are rich in both of the so-called accessory dietary factors.

Cost of Dried Eggs. The price of dried eggs was at the time of these experiments (spring, 1917) from $0.75 to $1.00 per pound—varying with the manufacturer and also the amount purchased. At $0.80 per pound the cost of the amount equivalent to a dozen eggs is $0.2526. It is quite apparent that the product sold at $0.80 per pound would be a comparatively inexpensive food, within reach of the vast majority of consumers, and would be a great improvement over the 40 to 50 or 75 cent eggs of our winter city markets.

At the present there is practically no retail demand for desiccated eggs, and consequently the product is difficult to obtain in the retail trade. They are on the market in wholesale quantities. If we are to control the prevalent waste of eggs, and thus effect a financial gain to both consumer and producer, the first step will be to create a demand for dried eggs. This can be accomplished only by placing the information before the housekeepers themselves, most of whom, we feel safe in saying, do not know that there is such a thing as a dried egg product. The creation of such a demand would make necessary a more extensive application of desiccation to eggs which would otherwise be wasted, and would therefore be not an apparent saving by merely making a change

[4] Bacteriological Studies on Eggs. O. Maurer, Kans. Agr. Expt. Sta., Bul. 180.

[5] Dietary Deficiencies of Rice. E. V. McCollum and M. Davis, *Jour. Biol. Chem.*, Vol. 23, p. 186.

of consumers, but would be a real saving effected by the preservation to a greater extent of the eggs now wasted.

The desiccated eggs used in this investigation are in a form suitable for retail trade, having been packed in one pound tin containers. Another sample recently obtained and therefore not analyzed with the others, is put up in a five pound cardboard container, and in this amount is entirely satisfactory for household purposes.

Practicability for Home Use. There are several points which may be mentioned in favor of the use of dried eggs in the home. At any season of the year the consumer may obtain a product of uniform quality. The product in tin or cardboard containers requires very little storage room, and no particular care, except that it be kept as cool as possible, since the higher temperature tends to lessen the solubility. The dried eggs are easily used both in the preparation of foods usually containing eggs and in serving alone as a protein rich food, replacing the expensive meat products.

Statement of the Problem. The problem which we have attempted to solve presents two phases: (1) the determination of the composition of the commercial samples of desiccated eggs, with a view to ascertaining whether or not the product is prepared from eggs alone, and how much must be used to be equivalent to one egg; (2) the determination of the efficiency of these commercial products in the preparation of foods containing eggs, as well as the flavor and appearance of the foods so prepared.

EXPERIMENTAL WORK

Analytical. The analytical problem consisted in determining the composition of three samples of commercial desiccated eggs which were available for this work. The constituents determined in each sample are: (a) protein, (b) ash, (c) moisture, and (d) fat. The methods used are those of the Association of Official Agricultural Chemists.[6] The results of the analytical work are summarized in the following table.

From this table we are justified in concluding that the Chinese product[7] is the only one of the three commercial samples examined which

[6] Official and Provisional Methods of Analysis. U. S. Dept. of Agr., Bur. of Chemistry, Bul. 107.

[7] Handled by Keith and Company, Boston.

is made entirely from eggs. The "Egg Powder"[8] apparently contains almost 20 per cent of added material, part of which, at least, is in the form of sucrose, as, indicated by our qualitative tests, as well as the statement of the firm.[9] The package states that the product contains "added sugar." The "Baker's Egg"[10] apparently contains over 8 per cent of some added material, although the label states that "Baker's Egg is guaranteed to be simply fresh eggs (dried.)"

Composition of products

PRODUCT	PROTEIN N x 6.25	ASH	H_2O	FAT	TOTAL
	per cent	*per cent*	*per cent*	*per cent*	*per cent*
Chinese eggs	51.68	3.18	9.08	36.55	100.49
Egg powder	41.96	3.06	3.93	31.72	80.67
Baker's egg	39.70	3.25	7.56	40.95	91.46

In order to verify the results obtained in the above analyses, qualitative tests were applied to the egg products to show the presence of carbohydrates. The results are given below as follows:

Result of analysis for carbohydrate

PRODUCT	STARCH	REDUCING SUGAR	SUCROSE
Chinese eggs	Not present	Not present	Not present
Egg powder	Not present	Not present	Present
Baker's egg	Not present	Present	Present (probably)

The addition of sugar to the desiccated eggs decreases the number of bacteria present, so that it may be used to conceal inferiority; also when used in the product to the extent of 10 per cent or more it must materially cheapen the output. For these reasons added sugar is to be looked upon with disfavor.

In calculating the amount of dried egg which is equivalent to one fresh egg, it seems best to base it on the protein content, since many of the purposes for which eggs are used, depend in large measure on the protein. On this basis one must use 13g. of Chinese Eggs, or 16g. of each of the "Baker's Egg" or "Egg Powder" to get an amount equal to that contained in an average sized egg. It should be remembered that the

[8] Handled and distributed by Merrell-Soule Company, Syracuse, N. Y.

[9] This company states that they use 10 per cent of sugar in the preparation of th "Egg Powder."

[10] Prepared and distributed by the National Baker's Egg Company, Sioux City, Iowa.

protein content of fresh eggs as reported by Atwater and Bryant[11] varies from a minimum of 10 per cent to a maximum of 15.6 per cent and therefore the substitution of desiccated for fresh eggs cannot be very exact.

Application of the Product in Cooking. The practical problem consists in determining the extent to which dried eggs may be substituted for fresh ones in the preparation of typical foods; and also the attractiveness and palatability of the foods so prepared.

In using desiccated eggs in cooking a little more foresight is required since they are not ready for immediate use. The dried egg to be used (one slightly rounded tablespoonful for each egg) should be placed in a suitable vessel, with three tablespoons of water to each egg, and the whole allowed to stand, covered, for from one-half to three-quarters of an hour. If the mixture is stirred or beaten with a fork at intervals, it will go into solution more readily. The solution thus obtained resembles a whole egg removed from the shell with both white and yolk beaten up together, and it may be used as such.

Before discussing the use of desiccated eggs in cooking, it may be well to call to mind the essential points in egg cookery. When eggs are used alone as a protein rich food, the object in cooking is to coagulate the protein and develop the flavor, thus making them more palatable. Eggs are frequently used as a means of thickening mixtures of the custard type—either the soft or firm custards, and their use here depends upon the coagulation of the protein. In batters and doughs eggs are used to give rigidity to the cells of the product when it is cooked or baked, and here again the object is accomplished by the coagulation of the protein. Furthermore eggs may be used as a means of incorporating air or other gases which give lightness to the finished product. Eggs are used in two types of salad dressings, those which have a custard basis, and those in which the egg emulsifies the oil. The principle involved in the preparation of the first of the salad dressings is the same as that for custards. The oil dressing depends upon the emulsification of the oil by the egg.

Scrambled Eggs—Omelets. The dried eggs are very satisfactory for use in scrambled eggs or in the plain or French omelets in which yolk and white are not separated. The material is brought into solution as described above, and cooked just as one would cook the fresh eggs.

[11] Chemical Composition of American Food Materials. W. A. Atwater and A. P. Bryant, U S. Dept. of Agr., Bur. of Chemistry, Bul. 128.

For serving as a protein rich food, in place of meat, a very good plan is to soak the eggs in skim milk rather than water, thus adding to the food value.

Custards. The dried eggs were used in making custards, both of the "soft" and "hard" type, using the ordinary proportions for custards. From the standpoints of appearance and consistency, both types of custards were very satisfactory; however, there is a marked difference in the taste between the fresh and dried egg custards. The latter are characterized by a peculiar taste which may be described as an "after-taste;" yet some individuals preferred the custard made from the Chinese dried eggs to the one made with fresh eggs.

The successful use of desiccated eggs in the preparation of custards suggests their further use in all sorts of desserts of the custard type or with a custard basis.

Muffins and Popovers. Muffins were made using the standard proportions and it was impossible to distinguish between those made from fresh and dried eggs. The same is true of popovers. Here again the successful use of the dried eggs suggests its further use in other soft doughs and batters.

Cakes. Four "butter" cakes, or cakes in which some kind of fat is used, were made, using the standard proportions of materials. Those made from the commercial dried eggs were compared with one made from fresh eggs and were equally satisfactory from the standpoints of appearance, texture, and flavor.

It is possible to make a fairly satisfactory sponge cake, using the dried eggs in place of the fresh. However, when this is done, one must use baking powder, since it is not possible to incorporate air in the egg white as is the case in making sponge cake from the fresh eggs. One half teaspoon of baking powder is needed as a substitute for the air incorporated in each egg white.

The desiccated eggs were also used in making cream puff shells, and the finished product compared favorably in every way with that made from fresh eggs.

Salad Dressings. Cooked salad dressings made according to the usual proportions, substituting dried for fresh eggs, were satisfactory. Several attempts were made to prepare good oil dressings with the dried egg products, but each attempt was unsuccessful. This seems to be due to the fact that, even with prolonged soaking and frequent beating, it is not possible to get the material sufficiently dissolved so that it

will permanently emulsify the oil. Only a temporary emulsion could be obtained, the oil separating out very quickly. This is not of great practical importance, since, as has been pointed out above, the bacterial content of the desiccated eggs is such as to render them unsafe for use without previous heating.

SUMMARY OF CONCLUSIONS

1. Satisfactory desiccated egg products may now be obtained.
2. According to the references quoted above, the bacterial content is not such as to prove detrimental to health when used in cooked foods.
3. Their use even at the present price will effect a considerable saving throughout a large part of the year. If the price can be lowered, dried eggs will become a comparatively cheap source of both fuel and protein.
4. The composition as determined by analysis shows that the commercial products examined are prepared from eggs, one without the addition of carbohydrate, and the other two with added sugar. The percentage composition of the three samples varies as follows: protein 39.70, 41.96, 51.68; ash 3.25, 3.06, 3.18; fat 40.95, 31.72, 36.55; moisture 7.56, 3.93, 9.08. Those samples in which the protein and moisture are low are the ones to which carbohydrate has been added, and the one which is very low in moisture content is the one in which the largest amount of sugar has been used.
5. The desiccated eggs may be used with highly satisfactory results in the preparation of practically all typical foods in which eggs are used.

"THE NEWER KNOWLEDGE OF NUTRITION"[1]

MARY SWARTZ ROSE

This book is an exceedingly interesting monograph on the author's investigations in a field which has been generally engaging the attention of students of nutrition for the last decade. Such investigations have added some invaluable facts to our previous knowledge of dietary

[1] "The Newer Knowledge of Nutrition." By E. V. McCollum. The Macmillan Company, 1918, pp. 199. $1.50.

essentials, enabling us to select food with more intelligence than ever before. It is highly important that the student and the teacher of home economics appreciate these new aspects of nutrition, and fortunate that Professor McCollum has embodied his own work in so delightful a treatise.

It has long been recognized that chemical composition alone furnishes no true criterion of the nutritive value of a food material, and this position is amply supported in the present work. Feeding experiments with purified food materials, both here and abroad, long since revealed that proteins, fats, carbohydrates, ash constituents and calories did not provide the last word in the science of nutrition, and led eventually to the discovery of vitamines. The way in which these substances have been discovered and their rôle in diet, are briefly but clearly explained in the book under consideration.

To Professor McCollum we owe a very clear formulation of the essentials of an adequate diet. In his own words:

"The diet must contain, in addition to the long recognized dietary factors, viz.: protein; a source of energy in the form of proteins, carbohydrates, and fats; a suitable supply of certain inorganic salts; two as yet unidentified substances or groups of substances. One of these is associated with certain fats, and is especially abundant in butter fat, egg yolk fats, and the fats of the glandular organs such as the liver and kidney, but is not found in any fats or oils of vegetable origin. The second substance or group of substances of chemically unidentified nature is never associated with fats or oils of either animal or vegetable origin. It is widely distributed in natural foods, and can be isolated in a concentrated, but not in a pure form, from natural foodstuffs by extraction of the latter with either water or alcohol."

This book gives in interesting detail the results of some of Professor McCollum's very extensive investigations regarding the place of common foods in the diet, and points out the close resemblance in dietary properties of food materials derived from a common source. For example, studies on white corn flour, rolled oats, rye, barley, Kafir corn, millet and flaxseed, peas, navy and soy beans, demonstrate that foods of this type tend to be deficient in the quality of their proteins; in calcium, chlorine, sodium; and in the fat-soluble vitamine. Hence the author concludes that it is not possible to secure appreciable growth in young animals fed exclusively upon seed products as the sole source of nutrition.

It is shown further that leaves and seeds together make a much better food than seeds alone, the combination being utilized fairly satisfactorily for animals, inasmuch as the leaf is especially rich in those mineral elements in which the seed is poorest, and contains much more of the fat-soluble vitamine than any seed, and proteins which appear to supplement and enhance the value of the seed proteins with which they are combined. "The leaf supplements therefore all the nutritive deficiencies of the seed, but not necessarily in a highly satisfactory manner. . . . . The freer the leaf is from the function of storage tissue, the more intensified will be its leaf properties as a food. . . . . The fleshly leaves tend to have in some degree the dietary properties of the seed, and stand intermediate between the leaves which are thin and dry easily and the seed in this respect." Roots and tubers, being storage organs, are similar to seeds in their dietary properties.

A chapter is devoted to a discussion of the vegetarian diet, and shows that while very carefully selected combinations of seed and leaf will secure fairly good nutrition, omnivera do not attain the optimum growth on diets derived entirely from vegetable sources. We are indebted to Professor McCollum for abundant evidence that one of the tests of an adequate diet is its ability, not only to support the adult animal in health, but to enable it to produce a second generation as vigorous as the first, and this second generation in its turn to produce equally vigorous offspring. Thus our standards of food for good nutrition have been distinctly raised, as the far-reaching effects of bad feeding have been impressed upon us.

The preeminent value of milk and the minor importance of meat are brought out in the chapter on Foods of Animal Origin. Ever since Hopkins found that small quantities of milk had a remarkable effect on the well-being of animals fed otherwise on purified food materials, and Osborne & Mendel discovered that protein from milk made efficient for growth diets otherwise unsuccessful, the dietary properties of milk have been diligently investigated. Every one familiar with this work must agree with the author in ranking milk as our most important foodstuff, "because the composition of milk is such that, when used in combination with other food-stuffs of either animal or vegetable origin, it corrects their dietary deficiencies."

Diseases associated with faulty diet (beri-beri, xerophthalmia, scurvy, pellagra, and rickets) are interestingly discussed and some very practical suggestions for investigation in this field of nutrition are made.

One of the most suggestive chapters is that on "The Nursing Mother as a Factor of Safety in the Nutrition of the Suckling," in which the author shows the great importance of an adequate diet and especially of liberal amounts of milk for the lactating woman.

There are many interesting considerations in the chapter on the planning of the diet, but one is tempted to take some exception to the statement that it is fallacious to compare foods on the basis of money value, since a very large proportion of the population is forced to select foods in the light of their cost. It would seem reasonable to say that the food which will give the most dietary essentials for the money spent is the cheapest food. Since energy makes the largest demand for food, and since the other dietary factors can in the main be secured along with the energy, in any valuation of food a large allowance must be made for its energy yield. In the words of Armsby:

"While it is true that a due supply of mineral matter, proteins, and vitamines in the food is equally essential, it is not, from the present point of view, equally important, since comparatively slight modifications in a diet supplying sufficient energy can ordinarily remedy deficiencies in this respect."

Sherman, in "Chemistry of Food and Nutrition," pp. 391,396, has proposed a very interesting method of determining the economic value of foods of different types which the student of nutrition will do well to consider carefully. Such an estimation will show, concretely, what Professor McCollum himself points out, that milk, while relatively high in fuel value, protein, mineral constituents (except iron), and vitamines, is a comparatively cheap food, even at its present price. So, too, soy beans and peanuts, which among seeds are high in fuel value and protein, relatively high in mineral constituents and vitamines of both types, will take less supplementing than other seeds and so may be regarded as cheaper than other foods of their class whose price per pound is the same.

It would give the beginner in this field a better conception of the scientific work which has led to the conclusions so succinctly stated, if, while reviewing his own work, Professor McCollum had put in more references to the work of his contemporaries along the same lines.

This is to be regarded as an epoch-making book in the field of popular literature in nutrition, and should be widely read.

WHAT IS EXPERIMENTAL COOKERY?

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Needless to say, the course which has been developed so well in some of our colleges and universities is *not* fancy cookery; nor is it a random groping about for successful recipes. Rather, it concerns itself with the patient development, one by one, of the principles upon which the successful recipe (consciously or unconsciously) is based.

In this fundamental study of underlying principles, the following points are to be carefully observed:

1. All of the variants which enter into the problem must be recognized and prescribed. It is usually the case that they are not entirely understood in the beginning, but their list must be completed before the work is finished. It is the large number of these variants, in many cooking processes, which sometimes makes standardization so difficult. To illustrate with a fairly simple case: suppose one is studying the amount of fat taken up by an egg fried in bacon fat. Conceivably the list of variants would include size, composition, and condition of egg (particularly proportion of yolk and richness of yolk, since fat in the material fried appears to attract and hold a large proportion of fat in the process of frying); composition and condition of the fat; initial temperature of the fat when the egg is put in; temperature to which the fat falls after eggs are added (dependent on the number of eggs fried simultaneously); rate at which this temperature rises during the cooking process (dependent in part upon the rate at which heat is applied, in part upon the material of which the utensil is made, as well as upon other factors); depth of fat and extent to which it covers the egg; amount of surface which the egg exposes to the fat, whether in thin or thick layers; length of time of frying; details of manipulation (whether egg is turned, or basted, or drained, etc.). All of these conditions, so far as possible, should be noted, and so described that it would be possible for others, who might at sometime wish to repeat the experiments, to work upon the same basis by following the account of what was done.

2. In an experiment to determine the effect of any given factor, all of the variants must be stabilized *except that one:* e.g., if it be desired to find the effect of soft-cooking or hard-cooking an egg upon the amount of fat absorbed, pains must be taken to cook two similar eggs in the same

skillet, with the same amount and kind and temperature of fat, spreading them in exactly similar shape and form, keeping the temperature uniform after the stage at which the soft egg comes out, and handling them in exactly the same way in every respect except that the second egg is turned over and remains longer in the fat. Each egg then serves as a "control" or basis of comparison for the other.

In work with batters and doughs, all fats, flours, and meals should be provided in sufficient amounts so that one lot only will be used throughout the whole set of experiments, since there is very considerable variation among different samples of such commodities.

3. All materials must be measured by weight, as a general rule. Even carefully trained workers are not able always to measure exactly duplicated cups of flour or cornmeal, tablespoonfuls of milk, or teaspoonfuls of soda; the size of eggs, potatoes, lemons, apples, etc., varies considerably; ¼ cup of butter as ordinarily measured in a cup may vary anywhere from 3 to 5 ounces, or still more widely.

4. The end point sought must be a sharp one and one capable of exact determination if possible. In the instance given above the weight of fat absorbed is determined with a fair degree of accuracy by weighing the fat before and after the egg is cooked. Thus the "end-point" is a weight, and is an absolutely definite and distinct determination. But often this is not the case in experimental cooking; e.g., in ascertaining the optimum amounts of various fats to be substituted in cake-making for 2 ounces of butter, our end-point determination is the comparative "richness" of two cakes—a matter of judgment, in which the discriminative powers of individuals vary greatly. Wherever possible, however, such judgments must be supplanted or at least supplemented by measurements of a purely objective character; e.g., visual judgment as to which of 2 loaves of bread has risen more may be replaced by exact measurements of volume and computation of specific volume or volume per gram or per pound.

5. All tests and trials of any given factor should be repeated, at least in duplicate, and duplicates should check within 2 per cent, unless one is forced to deal with measurements in which highly variable constituents are large factors, as, for example, the water and fat content of milk. These are so far from being uniform, as to cause considerable fluctuation in the determination of its calorific value and of some other "constants." In such a case as this, the tolerance may need to be increased, say to 5 per cent.

6. The method used should be checked in all possible ways, and this often puts a strain on the experimenter's resourcefulness and ingenuity. Bomb calorimeter determinations may be re-inforced by chemical analyses for protein, fat, and carbohydrate. Fat absorption into fried food may be determined by loss of fat from the original stock of fat, or by fat analyses of the food material before and after frying. All available literature, both American and foreign, should be searched for the results of other investigators engaged upon similar work; the student should familiarize herself with the various indexes and files likely to contain material useful to her.

7. Generalizations should be made from as much data as possible. The variation in many products and materials from one locality or season to another, the diversity of manipulation among individuals, must be explicitly taken into account whenever experimentation can be made to include all these and other elements or causes of variation. Thus is a really valuable and "practical" generalization patiently built up.

8. An important detail, sometimes overlooked by beginners, concerns the necessity for keeping permanently the original records of each day's work made at the time the work is done. Suppose that one is working for increased volume of loaf in bread making, trying to duplicate, in that respect, the results which some commercial bakers get. In a long series of records, very likely a few stand out as unaccountably high or low. One needs then to be able to turn back to the sheet which records that day's work, upon which any irregularity of procedure or peculiarity in results will be noted, such as could not be included in tabulated summaries. If the observer is sufficiently alert to everything that happens and the record sufficiently faithful, there is then a good chance to discover some new and hitherto unsuspected variant which may prove to be of importance.

9. Aside from the difficulty of establishing a sharp end-point, perhaps the most vexing source of difficulties in many problems of experimental cookery is in analyzing and standardizing the effect of various sorts of household manipulation. It would seem, for instance, that results obtained in baking one loaf of bread of average size should be applicable to a batch of four loaves, if all ingredients be multiplied by 4, and the procedure be the same; yet this is not necessarily the case. Those who have baked experimental loaves of a fairly stiff barley and wheat dough (25 per cent barley or more) have (in some cases at least) observed that when

the large batch is mixed by the same recipe it seems at first impossible to knead in all of the flour; i.e., the softening effect of kneading upon the barley dough becomes apparent much sooner in case of the small batch than in case of the large one, because the manipulation of the small mass is relatively more thorough, in equal lengths of time.

The following form illustrates an attempt to record in tabular form most of the variables encountered in judging and cooking dried vegetables. Further analyses of cooking processes from the same standpoint will be presented at some future time.

Form for report on cooking of dried vegetables or fruits

DESCRIPTION OF VEGETABLE	DESCRIPTION OF DRYING AND STORING PROCESSES	WEIGHT AND MEASURE OF DRIED VEGETABLES	AMOUNT AND TEMPERATURE OF H_2O FOR SOAKING AND COOKING	TIME SOAKED AND COOKED
Irish potatoes; Early Rose Standard no. 1; dug in July; dried in November; dry weight is 40 per cent of raw	Sliced ⅛ inch; blanched 5 minutes in boiling water; dried 8 hours; sealed in tin	2 oz. or ½ cup	1 cup, 15°C. Cooked in same water	Soaked 22 hours; cooked 10 minutes
Spinach; no. 3233; dry weight is 8 per cent of raw	Cut in slices; dried raw 2 hours; 140° to 160° F. May 7, 1918; paraffined paper bags	0.1875 oz.	½ cup; boiling at start	Soaked 2 hours; cooked in double boiler 20 minutes

WEIGHT AFTER SOAKED AND COOKED	SOAKING OR COOKING H_2O DISCARDED	ADDITIONAL COOKING	NUMBER AND WEIGHT OF SERVINGS	DATE OF COOKING TEST REMARKS
Soaked, 5 oz.; cooked, 5¼ oz.	No, boiled away	Added 1½ per cent salt;* 10 per cent onion;* slightly browned	2 servings, 2 oz. each	February 8, 1918; a little pastry when potatoes are mashed; fairly good flavor when cooked as above
2 oz.	No, mostly absorbed	Added 1½ cups milk; 3½ T. flour; 3½ T. oleo; salt, pepper	3 servings, 6 oz. each	October 12, 1918; almost tasteless; (had been dried 5 months; was delicious when 3 months dried)

* Computed on basis of weight of cooked vegetable.

The above form was designed with a view to recording the ease of cooking and the palatability of dried products when cooked by various

methods, and making possible the calculation of dietetic values of the cooked vegetable as eaten.

1. The nature of the cooking process should be plainly indicated and taken into account when considering either favorable or unfavorable impressions described by the testers who sample the finished product. For example, a dried potato, which has fallen off in flavor considerably, may yet be made into a fairly palatable or even attractive dish by the skillful addition of seasonings and accessories, such as cream sauce, or cheese and buttered bread crumb coverings; whereas its inferiority would be evident to all if it had been mashed with a little milk or butter, in the usual fashion.

2. Is the cooked dried vegetable, as served, dietetically the equal of the cooked fresh vegetable with respect to (a) calories, (b) protein, (c) mineral salt content, (d) vitamine, or anti-scorbutic content? In order to answer the first three of these questions, one must keep strict account of changes in water content (as indicated in the form here suggested) and also of any extraction of soluble nutrients by discarding the water in which these products are soaked or cooked.

3. Is there a progressive deterioration of flavor, color, and cooking qualities, as the dried products age? Is such deterioration (if any) independent of methods used in drying and storing the product? Is it possible to keep dried vegetables in prime condition, in the home, for a period as long as 8 months?

4. Are most dried vegetables as satisfactorily cooked by plunging them at once into boiling water, without any soaking whatever, as by more usual methods?

CENTIGRADE SCALE COMPARED WITH FAHRENHEIT[1]

RANGE, −29°C. (−20°F.) TO 309°C. (588°F.)

Illustrations. To convert 178°C. to Fahrenheit scale: Find 17 in the extreme left-hand column, proceed on this horizontal line to the column headed 8; 352°F. corresponds to 178°C.

Similarly, to convert 3°F. to the Centigrade reading: Find 3 in the series of Fahrenheit readings, run horizontally along this line to the

[1] From the Experimental Laboratory, Office of Home Economics, U. S. Dept. of Agr.

left, and it will be seen that −1 begins the desired number; at the top of the column in which 3°F. is placed, the second figure, 6, will be found. 3°F. corresponds to −16°C.

°C.	0	1	2	3	4	5	6	7	8	9
	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.
−2	−4	−6	−8	−9	−11	−13	−15	−17	−18	−20
−1	14	12	10	9	7	5	3	1	0	−2
−0	32	30	28	27	25	23	21	19	18	16
0	32	34	36	37	39	41	43	45	46	48
1	50	52	54	55	57	59	61	63	64	66
2	68	70	72	73	75	77	79	81	82	84
3	86	88	90	91	93	95	97	99	100	102
4	104	106	108	109	111	113	115	117	118	120
5	122	124	126	127	129	131	133	135	136	138
6	140	142	144	145	147	149	151	153	154	156
7	158	160	162	163	165	167	169	171	172	174
8	176	178	180	181	183	185	187	189	190	192
9	194	196	198	199	201	203	205	207	208	210
10	212	214	216	217	219	221	223	225	226	228
11	230	232	234	235	237	239	241	243	244	246
12	248	250	252	253	255	257	259	261	262	264
13	266	268	270	271	273	275	277	279	280	282
14	284	286	288	289	291	293	295	297	298	300
15	302	304	306	307	309	311	313	315	316	318
16	320	322	324	325	327	329	331	333	334	336
17	338	340	342	343	345	347	349	351	352	354
18	356	358	360	361	363	365	367	369	370	372
19	374	376	378	379	381	383	385	387	388	390
20	392	394	396	397	399	401	403	405	406	408
21	410	412	414	415	417	419	421	423	424	426
22	428	430	432	433	435	437	439	441	442	444
23	446	448	450	451	453	455	457	459	460	462
24	464	466	468	469	471	473	475	477	478	480
25	482	484	486	487	489	491	493	495	496	498
26	500	502	504	505	507	509	511	513	514	516
27	518	520	522	523	525	527	529	531	532	534
28	536	538	540	541	543	545	547	549	550	552
29	554	556	558	559	561	563	565	567	568	570
30	572	574	576	577	579	581	583	585	586	588

FOR THE HOMEMAKER

VISITING HOUSEKEEPING WITH THE JENSONS

RUTH BOWEN

Visiting Housekeeper, Associated Charities, Lansing, Michigan

A father twenty-two, a mother twenty, and five babies under four—such was the personnel of the Jensons when they first became known to the Visiting Housekeeper. Four boys—John, a solemn youngster of three and a half, seemingly already weighed by his responsibilities as eldest brother; Peter, an irresistible curly head of two; the twins, just past one; and the new baby sister, Olga. They lived, all seven of them, in a tiny two-room tar paper shanty measuring altogether only ten by fourteen feet. The three small windows were nailed shut in the fall and taken out for the spring house-cleaning. Every drop of water used had to be carried a long half block up hill.

Mr. Jenson, a Scandinavian by birth, could neither read nor write, even in his own language. He had a good work record as an unskilled laborer, and was really very anxious to do the best thing for his family. Low wages and the seasonal nature of his occupation (street graveling, coal hauling, and similar work) causing periodic unemployment, had made the task of providing for his rapidly growing family one that required much more careful management than he could give. In accordance with the old custom of his country, he handled the family pocketbook. His wife often did not know the amount of his wages. Mrs. Jenson, an American girl, had left the grade school at fifteen to be married. She knew nothing of the simplest rudiments of the household arts although she was very willing to accept instruction. All the children were undernourished, the twins particularly so. Although past a year old they had made no attempt to creep or walk, partly because they had never had the right sort of food for developing the requisite bone and muscle, and partly because there was not room on the floor of the shanty for them to learn.

The family had been referred to the Associated Charities for visiting housekeeper care by the visiting nurse who had given nursing care at the time of the baby's birth. They had not previously been known to any social agency in the city.

The Visiting Housekeeper's most natural entrance into the family was through the need of a supervised diet for the children. With the coöperation of the visiting nurse they were taken to the Children's Clinic. There it was found that the trouble was entirely one of malnutrition, and a special diet, including milk and oranges, was prescribed for them. With oranges a dollar a dozen, diamonds would have been about as easy for the father to provide. Milk also, even the two quarts and a half a day which was the minimum for the five babies, was a heavy burden for Mr. Jenson who was experiencing one of his frequent periods of unemployment, and who shared the popular working-class prejudice that milk is a luxury.

A half dozen oranges a week were secured from one source, three quarts of milk daily from another, and the visiting housekeeper went in to teach the planning and preparation of the simple menus. Mrs. Jenson learned to bake her own bread, to prepare oatmeal, to bake apples, and to prepare other inexpensive and wholesome food. Everything was first prepared under supervision of the visiting housekeeper in the home, then Mrs. Jenson was urged to do the work independently. She followed instructions faithfully and learned readily, and soon became able to use a printed recipe without supervision. The children started to gain, but any normal progress was impossible under the housing conditions.

When the question of moving into a better house was broached, the whole problem of finances came up. Mr. Jenson was buying the small lot where he lived for ten dollars a month, but was back eight months in his payments. It would not have been worth while to try to make up these payments, as the lot was undesirable and the house impossible. Through the efforts of the visiting housekeeper a suitable five room cottage was found in a desirable neighborhood. It could be bought on contract for $1300.00, with a cash payment of $100.00 and a monthly payment of $12.00.

Besides the $80.00 for back rent the Jensons owed $109.35 at twelve different credit and furniture stores. They had with sublime optimism purchased goods at one store after another, making the initial payment and perhaps two or three subsequent ones; then, under pressure of other needs, they allowed the payments to lapse. They were not in any sense

professional "dead beats" but the twin evils of unlimited credit and lack of financial sense had involved them almost hopelessly in debt. Mr. Jenson's wages had been garnisheed once, and other creditors were threatening. Some financial backing must be found for the family if they were to get on their feet again. The following plan was finally worked out. The Associated Charities advanced $100.00 for the first payment on the new house as a loan without interest. In return, Mr. Jenson made an assignment of his entire wages to the Associated Charities, to be handled under the supervision of the visiting housekeeper. This protected him against further garnishee, served as a steadying influence, and also gave the Associated Charities some security for their loan.

Fortunately at about this time Mr. Jenson secured a steady job paying $3.00 a day, which later was increased to $4.00. A budget was worked out providing for food, clothing, and sundries for the family. A copy of the assignment was taken to the employer by the visiting housekeeper, and through his coöperation the amount estimated as necessary for those items was paid to Mr. Jenson and the balance to the Associated Charities to be used by the visiting housekeeper for rent and back debts. With this plan as a background, the visiting housekeeper interviewed the creditors who with almost uniform readiness accepted her promise that the debts would be paid pro rata and as fast as possible. The former landlord on hearing the story cancelled $40.00 of the $80.00 due him. Another creditor, who had started garnishee proceedings agreed to suspend them for a reasonable length of time.

The first of April the Jensons moved into their new home. To Mrs. Jenson its two greatest charms are that it has two bedrooms and that the pump is right at the back door. Under more favorable influences she is developing into a fairly efficient housewife. Last summer she bought a second hand sewing machine for $2.50. After much effort and equally patient instruction, she has achieved two pairs of rompers, a dress, and a petticoat. Now that she has mastered the rudiments of patterns, scissors, and machine, her progress promises to be more rapid.

In the six months since the present financial arrangement went into effect Mr. Jenson has met every month the $12.00 payment on his house, has repaid $21.00 of the $100.00 loaned him by the Associated Charities, has paid $28.91 on his back debts and has contributed $5.00 to the Red Cross War Fund. He has changed jobs several times and is now earning $19.00 per week. The assignment while still nominally in force, has not been sent to his present employer, as it seems wiser to

allow Mr. Jenson to draw his entire pay check and pay a stated sum weekly to the Associated Charities.

Best of all, with plenty of fresh air and plain wholesome food the twins, and the small baby sister as well, have learned to walk, and all five babies are developing into healthy childhood. The family has now been under visiting housekeeper care for a little more than a year and promises to need supervision for at least that much longer. During this period visits numbering as many as eight and ten a week have been made, including one or two night visits, necessary because Mr. Jenson can be seen only after working hours. Almost every phase of visiting housekeeping supervision has been needed. A budget was planned for the family. Accounts have been kept and expenditures supervised. Mrs. Jenson has been taught cooking and sewing by personal instruction in her home. She is also a member of a neighborhood sewing class, meeting weekly. The visiting housekeeper has helped Mrs. Jenson plan her menus and her grocery order, and has gone shopping with her.

Because of Mr. Jenson's lowered wages, the need for buying fuel, and the higher cost of food, the amount now handled by the visiting housekeeper provides only for rent and insurance; but later in the spring when Mr. Jenson can get road work at $4.00 and $4.50 a day, he will resume payments on his back debts. He is so well pleased with his progress that he has asked the visiting housekeeper to continue her friendly supervision even after his debts have been paid, and to help him start a savings account.

WISE SPENDING

R. G. BLAKEY

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Wise spending implies the balancing of all needs and of all means of meeting these needs and, after balancing needs against means, spending in such a way as to meet the most urgent wants, even if lesser ones have to be left unsatisfied. In essence it means a sort of budget making. When a family, city, or state makes a budget, what it does is to take a comprehensive view of both needs and income. It is important that not all of the income be spent on the first needs that may occur lest other

more urgent needs appear and no funds be left to meet them. Thought must be taken that available income is applied intelligently and wisely to cover most important needs and to satisfy them somewhat in proportion to their relative importance.

Perhaps the most important and difficult problem in connection with wise spending is to realize the relative importance of future as compared with present needs. It is very foolish to neglect the urgent necessities of today for the petty wants of the morrow, but only misers and a few other people need very much persuasion to induce them to take care of the present. But where most of us are foolish or unwise is in satisfying petty wants of the present rather than saving in order that urgent needs of the future may be met.

Saving, *per se*, is of no special advantage. When people save instead of spend, what they really do is to save for a chance to spend for something worth more later; so in the last analysis everything is spent. This means that it is worth while, even in a "savings campaign," to talk more about spending than about saving.

Since the world is so large that it is difficult for us to see it as a whole, it may make matters clearer, perhaps, if we assume the world to be a small community, a sort of Swiss Family Robinson community on an Island. If this community had a certain amount of wheat, sugar, or clothing, it would be foolish to use none of it today and save it all for the last of the year. On the other hand, it would be just as foolish to use all of it at once and have nothing for the remaining months. The wise thing to do would be to estimate the needs throughout the year and to distribute the supplies over its entire length. The more the people of this community can produce during the year in addition to the stores they had on hand at the beginning, the more they can use in the present, and also the more they will have for each day of the year. The more risks there are, whether of bad seasons, hurricanes, accidents, sickness or other misfortunes, the less the amount that should be used now and the greater the amount that should be saved for later parts of the year.

We may imagine this community to be a very primitive one, without any capital, or with a small amount of capital, which it wants to increase. The only way to do this would be to devote only part of its energies to the producing of goods that would be consumed currently and to devote the other part to the building of houses, machines, or railroads, which would not be consumed currently, but which in time

would result in the production of a much greater quantity of goods for consumption; in other words, the sacrifice of some goods in the present would result later in the making of instruments which would yield many times as many commodities as were sacrificed earlier. That is, the building up of capital requires taking thought for the morrow as well as for the present, wise spending in the present, and the saving of what can be most easily dispensed with now for the sake of a larger product later. This is necessary in order to produce in quantity and cheaply, in order to make it possible to have a large population, in order to give opportunity for specialization, in order to give time for certain classes to have leisure enough to think and develop science, in short, in order to have what we moderns call civilization and especially to have a progressive civilization. This is elementary and understood by most of us, but we do not always appreciate it.

Our needs and wants are indefinitely great, both in number and quantity. It is absolutely impossible to satisfy all of them. The best that we can do is to satisfy the most urgent and eliminate the lesser ones. If we satisfy the latter, it will mean the sacrificing of the greater for the lesser. This, of course, means that one must have a philosophy of life in order to decide what is most worth while and what can be eliminated. This brings us to the answer of the question which many people have asked,—How may I determine what is foolish and what is wise expenditure? It depends upon one's judgment of what is worth while and of the extent of one's means available for the satisfaction of wants. The decision, of course, must consider not only the individual's needs and desires but also his duties to his family and to society at large. But we must even go a step further, a society cannot allow an individual to do what seems most worth while to him if the doing of those things injures society. Not only the murderer and thief must be taught better ways or be eliminated, but also those whose acts are non-social in other ways must be encouraged to adjust their work, and to so satisfy their wants that what they do shall be in harmony with the interests of society rather than contrary to them.

Foolish spending is one of the things which is exceedingly non-social; wise spending is best for the interests of the individual and also for the interests of society. It is the function of the savings campaign to convince the great mass of American people of this fact, and to use moral suasion, and to bring to bear the mighty force of public opinion so that they may align themselves in such a way that their interests and actions

will harmonize with the interests of the people as a whole, so that they will spend wisely rather than foolishly. In other words, the campaign is to help make every citizen of the United States a good citizen.

MILK: ITS RELATION TO RACE CHARACTERISTICS

It is of special moment at this time to emphasize the importance of the dairy industry in its relation to the public health. Mankind may be roughly classified into two groups. Both of these have derived the greater part of their food supply from seeds, tubers, roots, and meat, but have differed in respect to the character of the remainder of their diets. One group, represented by the Chinese, Japanese, and the peoples of the Tropics generally, have employed the leaves of plants as almost their sole protective food. They likewise eat eggs and these serve to correct their diet. The other group includes the peoples of Europe and North America and a few others. These have likewise made use of the leaves of plants, but in lesser degree, and have, in addition, derived a very considerable part of their food supply from milk and its products.

Those peoples who have employed the leaf of the plant as their sole protective food are characterized by small stature, relatively short span of life, high infant mortality, and by contented adherence to the employment of the simple mechanical inventions of their forefathers. The peoples who have made liberal use of milk as a food, have, in contrast, attained greater size, greater longevity, and have been much more successful in the rearing of their young. They have been more aggressive than the non-milk using peoples, and have achieved much greater advancement in literature, science, and art. They have developed in a higher degree educational and political systems which offer the greatest opportunity for the individual to develop his powers. Such development has a physiological basis, and there seems every reason to believe that it is fundamentally related to nutrition.—*The Newer Knowledge of Nutrition by E. V. McCollum.*

INSPECTION VS. EATING

Montague Glass keeps up with the times; therefore home economics must have "arrived," for Abe and Morris discuss it in connection with dramatic criticism in a recent article in a very amusing way.

"Well, I'll tell you," Morris said, "while I admit that the theayter cricket is smart fellers and knows all about the rules and regulations for writing plays y'understand, so that they can tell at a glance during the first performance if the audience is laughing in violation of what is considered good play construction or crying because the show is sad in a spot where a play shouldn't ought to be sad if the man who wrote it had known his business, y'understand, still at the same time theayter crickets is to me in the same class with those here diet experts. Take a dinner which one of them diet experts approves of, Abe, and the food is O.K., the kitchen is clean, the cooking is just right as to time and temperature of the oven, there's the proper proportions of water and solids, and, in fact, it's a first-class, a-number-one meal from the standpoint of every person which has got anything to do with it, excepting the feller which eats it, and the only objection he's got to it is that it tastes rotten."

"And that would be quite enough to put a restaurant out of business if it served only good meals according to the opinion of diet experts, Mawruss, because diet experts don't buy meals, Mawruss, they only inspect them," Abe commented.—*Washington Star* (Copyright, 1918, by McClure Syndicate).

AN ODE TO HEALTH

Health of itself makes life a perpetual joy. Nothing daunts, nothing overawes, nothing discourages and nothing overpowers the man and woman possessed of health. Health means not only vigor and energy of body, but also clarity and strength of mind; purity and beauty of soul. The healthy person dominates life instead of allowing life to dominate him. To him work is a joy. He regards obstacles as but opportunities for testing his strength. He hardly knows what weariness is. He never experiences exhaustion. Merely to grasp his hand is a pleasure. Health supplies the courage, the aggressiveness in life. Without health one is bankrupt regardless of what his financial capital may be. He becomes a cipher in the world of real men and women. If you have health, then, friends, cherish it, guard it and treasure it as you treasure life, for out of it are the issues of life.—*Bulletin Indiana State Board of Health.*

EDITORIAL

A LETTER FROM THE SAVINGS DIVISION OF THE TREASURY DEPARTMENT TO THE AMERICAN HOME ECONOMICS ASSOCIATION

The American Home Economics Association, through its Council, has offered to coöperate in the Thrift Campaign undertaken by the War Savings Division. The Association has asked in what ways home economics workers in the class room, the home, or on the platform can put over thrift ideals and methods, and reach the results for which the Government is working.

It is evident that there are opportunities to make this year the beginning of the golden age of wise living; that such opportunities are especially open to a body of people who for many years have been teaching principles that are directly applied to this campaign of thrift.

This letter is written to suggest a few of the specific ways in which those trained in home economics may help in putting before every home and every individual the kinds of thrift that are worth while in daily living; that will give them an idea of proportionate costs, and show them the relation of individual saving to the prosperity of the community and the stability of the nation.

Those of you who are teaching will, of course, work first of all with your own students. See that the thrift program is presented to them. If you are an elementary teacher, this may be done by following some of the suggestions sent out by the Savings Division in National School Service; using fifteen minutes a week in giving a thrift lesson; introducing some thrift problems in the arithmetic class; using thrift stories as supplementary reading; asking the children to plan posters, or to think out thrift slogans; or even giving a simple thrift play. If you are training teachers, offer a short course this summer that will show normal students how to teach even the elementary school child a spending plan, and that will use the child to reach the home with ideals of thrift and practical methods of wise spending and saving.

Urge the department of general economics in your institution to pay especial attention this year to the discussion of wise spending and the theory of savings. Ask to have at least one or two public lectures given during the summer term, perhaps by a local banker or business man, so that every student may have an opportunity to hear what safe investment means.

Start a thrift bureau for students. Keep it open an hour a day. Train one of your own students to answer the simpler questions. Take care of the more difficult ones yourself. Students will bring problems from home, giving you an opportunity to help in the solution of very real and immediate problems.

If the student thrift bureau is successful and conditions warrant it, find some one who will help you start a thrift information bureau for the community in which you live. Suggestions in regard to the method of conducting such a bureau may be obtained from the Savings Division.

Teach simple ways of keeping accounts. Do not lay on the housekeeper too great a burden. An account for a month will give some basis for a budget plan.

Make your own spending plan; you can hardly ask of others what you do not find time to do yourself. You have probably found simple and quick ways of getting at what you want to know. Show others how to do it.

Suggest that the woman's club to which you belong study for part of next year's work "Ten Lessons in Thrift" that will soon be issued by the Savings Division. Leaflets on Household Thrift are in preparation by the Department of Agriculture and the Treasury Department and will soon be available, and will help in such study clubs and elsewhere.

Offer your services as speakers to your local War Savings Directors; suggest other good speakers who have the necessary technical information. The best way to prevent the choice of ill informed speakers is to suggest good ones. Ask some of your graduates who have married and had practical experience in home making to enlist for occasional speaking. Offer a few lessons, if it be not more than two or three, for speakers who need more instruction as to facts.

Try writing. Ask the local newspaper to allow you to conduct a "question and answer thrift column" for a month, and give the best answers in your power to the multitudes of questions that are now being asked in regard to budget making, household accounts, how to buy, how to manage the home.

Gather up suggestive material from your students or from housekeepers, showing the actual way in which different individuals and families spend, and send this to the Savings Division. Send also every possible suggestion of plans of thrift work, of ways of reaching different kinds of people, of methods that you have found successful.

The National Savings Campaign is organized under the Savings Division, War Loan Organization, Treasury Department, Washington, and the active campaign is directed through twelve District Savings Directors located in the twelve Federal Reserve Bank Districts. Under each District Savings Director, an organization of state, county, and local savings directors is administered. The local savings director provides for the establishment of sales agencies for War Savings Stamps, and the organization of War Savings Societies in schools and other educational institutions, and in shops, stores, offices, and other places of employment. The members of the American Home Economics Association can contribute largely to the success of the national campaign by coöperating with their local savings directors in promoting War Savings Societies, and in helping to bring to every individual and family the ideals of thrift and of better living.

BOOKS AND LITERATURE

Any book or periodical mentioned in this department may be obtained through the JOURNAL OF HOME ECONOMICS if the Journal price is listed.

Nutrition and Clinical Dietetics. By HERBERT S. CARTER, PAUL E. HOWE, HOWARD H. MASON. Philadelphia and New York: Lea and Febiger, 1917, pp. 622. $5.50.

This volume is a welcome addition to the number of general text-books on diet, designed for the use of the medical practitioner, the dietitian, and the teacher of dietetics. The authors have made a praiseworthy and measurably successful attempt to combine without confusion the working directions which may be deduced from laboratory experiment and from clinical experience.

The book is divided into four parts. Part I, Foods and Normal Nutrition, is subdivided into discussions of digestion, energy requirement, protein requirement, inorganic salts and water, normal feeding, and food economics. Most of the recent exact experimental material is mentioned, although not always in the organized and judicial fashion looked for in a text-book. Only six footnote references are given, and not all of these are selected with a view to furnishing the reader with the key to the most profitable further study. For example, under vitamines, only one reference is given, that to Williams' work on attempted vitamine synthesis.

This part is, nevertheless, remarkably inclusive in the number and adequacy of the topics it covers.

Part II, Foods, is divided into chapters classified as dealing with protein-rich, carbohydrate-rich, fat-rich foods, and foods valuable for their salts, water, and bulk. Each discussion of the common foods found under these headings includes usually information as to composition, cooking, and digestibility. This familiar description and statistical material on foods is apparently considered indispensable to texts on dietetics, but has become so accessible from other sources that one wishes the space might have been used for the enlargement of the less easily digested and more pertinent material in Part I.

Part III, Feeding in Infancy and Childhood, is a somewhat less complete and less satisfactory treatment of a most important topic than the scope of such a text-book would prescribe.

The clinical character of the book is naturally more marked in this and in the following part than in those preceding, but is disappointingly apparent here. One cannot help feeling that even the most clinical minded and hurried practitioner might welcome here some mention of infantile scurvy, normal growth standards, stool analysis, to mention only the most obvious of the omissions.

Part IV, Feeding in Disease, forms the main portion of the book. The chapters are divided in the usual manner, according to disease grouping, and, also in the usual manner, every type of ailment is listed faithfully by name whether or not a specific dietetic recommendation can reasonably be made for it.

The statement made by the authors in the preface that "a book founded entirely on facts proved in the laboratory is as yet impossible . . . . and that in dealing with all things human the personal equation is of immense importance . . . . that it is on this account that accurate clinical observation will always be a prime factor

in the successful feeding of patients" is borne out by the amount of clinical detail introduced into Part IV.

A constant attempt is made, however, to introduce the results of experimental evidence wherever such evidence is available, and references to these original sources are at least occasionally given. As is promised in the preface, the latest evidence is always presented wherever it is not overshadowed by more convincing older work. It is apparent, however, that revision and addition must even now be made in more than one chapter.

It may be questioned whether the time may not have come when these encyclopedic treatises upon so complicated and constantly changing a subject as dietetics are no longer necessary. Certainly their constant revision involves considerable expense and labor. The alternative practice so well exemplified in the series of Biochemical Monographs, of coördinated separate publications on the important subdivisions of the subject might well be given a trial.

Meanwhile "Nutrition and Clinical Dietetics" will be found among the favorite references of the practical prescribers of diet.

AGNES FAY MORGAN,
The University of California.

The Business of the Household. By C. W. TABER. Lippincott's Home Manuals. Edited by B. R. Andrews. Philadelphia: J. B. Lippincott Company, 1918, pp. 438. $2.00. By mail of the Journal, $2.15.

Too often books and articles on business practices in the household treat only of the financial aspects of budget planning, household accounting, savings, and credit, and pay but little attention to the need for developing better judgment in the use of money so that better living standards will be maintained.

Too often books and articles on better household practices pay but little attention to the cost of such practices in relation to income and the amount of other necessary expenditures, thus losing much of their practical value in improving home standards as a whole rather than as a part.

Neither criticism can be made of "The Business of the Household," and it should prove of great value for this reason as well as for the large amount of information which it presents in clear, interesting form.

The first part of the book deals with the "Fundamental Principles of Household Finance," and includes excellent material on budgets and accounts, although not many people would probably be willing to use quite as complicated forms as those suggested.

"Factors in the Family Budget" are next considered, and there are unusually good discussions of the financial and homemaking aspects of the various types of expenditure included within the family budget plan.

The last part of the book contains much reliable information, not easily available hitherto for teaching or personal use, with reference to the legal status of the family, real estate titles and transactions, inheritances and wills, and laws which affect the family.

At the end of each chapter are suggestions for questions, problems, and demonstrations, or themes for debates, which should prove serviceable in arousing interest in the class room and in the home in the practical applications of the general principles being studied. There is also a good bibliography in connection with each topic discussed.

The book should prove serviceable to the many men and women who are endeavoring to manage their homes on sound business and homemaking principles, and also to the home economics teacher and extension worker. It should also prove serviceable to the teacher of arithmetic, economics, or civics, who is desirous of including in the course discussions of problems touching on matters of household finance or improvement of living standards.

Criticism might be made that the author assumes that all families have a larger and more regular income than is common in many industrial and rural centers, and a

considerable amount of leisure from other work for attention to the management of the home. Comparatively little space is devoted to any discussion of the various community efforts to improve home living conditions and the need for coöperation in such efforts as well as for work to improve the individual home. In spite of these limitations in breadth of vision, the book is a real contribution to the small number of books dealing with home problems from a financial or legal viewpoint, and to the larger number of books dealing with the various problems of home management from the practical, housekeeping viewpoint.

EMMA A. WINSLOW.

Camouflage Cookery. By HELEN WATKEYS MOORE. New York: Duffield and Company, 1918, pp. 106. $1.00. By mail of the Journal, $1.05.

A book of "mock" dishes. An interesting compilation of recipes from mock chicken and mock horse's neck to mock bar-le-duc currants and maraschino cherries; most attractively gotten up, with one recipe to a page, and with each recipe a delightful quotation. The collection of quotations is itself almost worth the price of the book.

Food and Victory. By CARLOTTA C. GREER. New York: Allyn and Bacon, 1918, pp. 62. $.40. By mail of the Journal, $.45.

"Food and Victory" was prepared as a War Supplement to the author's "Textbook of Cooking," but much of it is valuable as a permanent contribution to economy in the use of food. The power of adaptation, and skill in the preparation of unfamiliar foods are qualities that have permanent value.

PAMPHLETS RECEIVED

Issued by the United States Department of Labor, Children's Bureau:

Child Care Series: *The Care of the Mother, Feeding the Child, Milk, Breast Feeding, Bottle Feeding, The Preparation of Artificial Food, Good Books and Pamphlets on Child Care.*

Children Before the Courts in Connecticut. Wm. B. Bailey. Dependent, Defective, and Delinquent Classes Series No. 6, Bureau Publication No. 43.

Sixth Annual Report of the Chief, Children's Bureau, to the Secretary of Labor.

Studies of Use of Milk by Families Having Little Children. III. New Orleans.

Issued by the United States Public Health Service:

Disabling Sickness Among the Population of Seven Cotton-Mill Villages of South Carolina in Relation to Family Income. Reprint No. 492 from the Public Health Reports.

Public Health Administration in New Mexico. Reprint No. 490 from the Public Health Reports.

Sanitation of Rural Workmen's Areas. Reprint No. 487 from the Public Health Reports.

State Laws and Regulations Pertaining to Public Health, 1916. Reprint No. 406 from the Public Health Reports.

Issued by the Department of the Interior, Bureau of Education:

Effect of War Conditions on Clothing and Textile Courses. Home Economics Circular No. 7.

Recent State Legislation for Physical Education. Bulletin, 1918, No. 40.

Rural-Teacher Preparation in State Normal Schools. Bulletin, 1918, No. 27.

Teaching American Ideals through Literature. Bulletin, 1918, No. 32.

Vocational Guidance in Secondary Education. Bulletin, 1918, No. 19.

Issued by the Federal Board for Vocational Education:

Agricultural Education. Bulletin No. 26, Agricultural Series No. 4.

Second Annual Report, 1918.

Buildings and Equipment for Schools and Classes in Trade and Industrial Subjects. Bulletin No. 20, Trade and Industrial Series No. 4.

Issued by the Massachusetts State Department of Health:

Care of the Child in Hot Weather.

Food Rules for School Children.

Food for the Child. Reprinted from the Commonhealth, Vol. 5, No. 8.

Food for Children from Two to Six Years Old. Reprinted from the Public Health Bulletin, Vol. 5, No. 2.

Food: What it is and What it Does. Reprinted from the Public Health Bulletin, Vol. 4, No. 12.

Food and the Calorie. Reprinted from the Public Health Bulletin, Vol. 5, No. 1.

Energy Producing Foods. Reprinted from the Public Health Bulletin, Vol. 5, No. 11.

Fats and Their Value in the Diet. Reprinted from the Public Health Bulletin, Vol. 5, No. 5.

Tissue-Forming Foods. Reprinted from the Public Health Bulletin, Vol. 5, No. 3.

Certain Dietary Essentials. Reprinted from the Public Health Bulletin, Vol. 5, No. 4.

Influenza Bulletin.

The Venereal Diseases.

Issued by the New York State Department of Health:

Epidemic Influenza Number. Mo. Bulletin, December, 1918.

Oral Hygiene Number. Mo. Bulletin, November, 1918.

Issued by the Ohio State University:

Kitchen Tests of Relative Cost of Natural Gas, Soft Coal, Coal Oil, Gasoline, and Electricity for Cooking. Department of Home Economics.

Utilization of Food. Recipes. Extension Bulletin. Vol. XIV, No. 2.

Issued by the New Mexico College of Agriculture and Mechanic Arts:

Extension Circulars: A Whole Dinner in One Dish, No. 43; Meat Saving, No. 39; Pinto Bean No. 38; The Potato, No. 42; Soups, No. 49; Sugar Saving, No. 41.

Issued by the publishers listed:

The Common Cold. Leaflet No. 2. American Association for Study and Prevention of Infant Mortality, Baltimore, Md.

Fancy Meats in Newest Dishes. Canada Food Board, Ottawa, Ont.

Food Conditions in 1919. Bul. No. 22. Canada Food Board, Ottawa, Ont.

The Gary Public Schools. Household Arts. Eva W. White. General Educational Board, 60 Broadway, New York.

Medical Mail-Order Frauds. American Medical Association, 535 North Dearborn St., Chicago, Ill.

Testing of Textile Materials. Department of Commerce, Bureau of Standards, Circular No. 41 (3d Edition).

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PERIODICAL LITERATURE

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In this investigation attention was principally directed toward estimating the presence of coli-typhoid group, streptococci, and anaerobic organisms on green vegetables. The number of bacteria was also determined. An attempt was made to find whether or not the general sanitary conditions of the store at which the purchase was made had any influence on the bacterial contents. The study was made with vegetables from Chicago stores.

The conclusions are that there is a great variation in the bacterial counts and that no direct sanitary relations in the store sampled were apparent but it must be noted that the free lunch counters gave a very high colony count.

The observations do not seem to indicate that the general sanitary conditions of the store influenced the bacterial count.

Report of Committee on Production and Conservation of Food Supplies. *Amer. Jour. Pub. Health*, 8 (1918), No. 10, p. 780.

Cost to Consumer of a Pound Loaf of Bread. *Amer. Jour. Pub. Health*, 8 (1918), No. 10, p. 785.

A Comparative Study of Milk Plates by Four New York Laboratories. *Amer. Jour. Pub. Health*, 8 (1918), No. 12, p. 913. Editorial Note, p. 927.

"Reconstructed milk" is one of the food products to which war has given great stimulus. It is not in any way intended to furnish the supply in any country where cows are conveniently near.

Munition cities that were built in a day and without reference to the food supply of the country about them were the ones to be benefited. At Nitro, W. Va., there was established a city with a daily demand for milk of about 3,000 quarts. There was prospective danger to the children, to say nothing of the inconvenience to their elders. The U. S. Public Health Service saw the opportunity for a very practical trying out, and its report of the results is exceedingly satisfactory. Reconstructed milk is dried skim milk which for use is enriched by the addition of butter fats and in the process of reconstruction the milk is pasteurized.

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Central America: Textiles and other designs taken from those of the Mayans of Central America. Ada Beckwith, *School Arts*, Nov. 1918.

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Cottage Chairs for Country Homes. *House and Garden*, Jan., 1919.

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How to Handle Color in Decoration. *House and Garden*, Jan., 1919.

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NEWS FROM THE FIELD

Fellowships in Social-Economic Research.—Three paid fellowships in social-economic research are offered each year by the Women's Educational and Industrial Union to women who wish thorough preparation for such work. The fellowships carry a stipend of $500. Clerical assistance, equipment, and traveling expenses necessary for the investigation are furnished by the Department of Research.

A degree from a college of good standing, training in economics or sociology, and satisfactory references in regard to health, character, and special fitness for social-economic research are required of all candidates for the fellowships. For the past five years the successful applicants have been women with some graduate training or experience. The research fellows are expected to devote their entire time for ten months to the training given by the Department of Research.

Training is given in the making and criticism of schedules, in field work in the construction and interpretation of statistical tables, and in the literary presentation of the results of the investigation. All fellows are required to take the course in statistics given by the Director of the Department of Research.

In addition to formal training in statistics and methods of research, two coöperative investigations will be made by the staff of the Research Department. The first of these is limited in scope and is based on data already collected. The second, which will be the chief original investigation of the year, will require field work for the filling of schedules, and will afford each fellow experience in all stages of the work required for modern co-operative investigations of social or economic problems.

Students who have received satisfactory undergraduate training in sociology and economics may offer the year's work in the Research Department in fulfillment of requirements for the degree of Master of Science in Research at Simmons College. The thesis or research work is accepted also in certain seminar courses at Radcliffe College, Tufts College, and Massachusetts Institute of Technology. By special arrangement with the Committee on Graduate Instruction of Wellesley College, the work may be counted as a part of the requirements for a master's degree. Several western universities have accepted the completed studies as theses for advanced degrees, and have given graduate credit for the training in research. Professors from affiliated colleges serve on the committee which awards the fellowships.

Application must be filed before May 1.

For further information and application blanks, address Department of Research, Women's Educational and Industrial Union, 264 Boylston Street, Boston, Massachusetts.

Conference of State Leaders, Home Demonstration Agents in Northern and Western States. These meetings were held in the offices of the Women's Section, North and West, States Relations Service, United States Department of Agriculture, January 2 and 9, inclusive. Miss Florence E. Ward was chairman of the conference.

The program opened with an address from Dr. True. There were short reports from the states; mock community meetings for the purpose of presenting the strong points in organization; round tables for discussion of special interests; committee meetings to consider the program of work, outstanding projects, relation of research to home dem-

onstration work, specialists, graphics, publicity, farm and home bureau organization, coöperating government agencies, coöperating projects within the colleges and the Department, office organization reports and records, insignia, community projects, and general resolutions. There were three social gatherings: a joint dinner of all extension workers, North and South participating; a tea given by the Washington Staff at Miss Ward's apartment; a reception by Mrs. David Houston, wife of Secretary Houston. Visits were made to the White House and Senate, and the conference closed with individual discussions with each member of the scientific staff.

A brief survey of reports from the field indicate that home demonstration work is developing into a strong organization. The rural work is progressing toward a permanent place in the Farm Bureau scheme. Urban work is strengthening its organization which is based on the same general principles as the Farm Bureau. The principle on which these newer plans of work are based is that of self-expression in the community. Each farm or home bureau is assisted by the agent to the point of articulating its needs, of putting on a program of work to meet these needs, and depending upon the leadership of the Home Demonstration Agent to carry out this program.

Notes. A department of Household Economics was organized at the University of Alberta, Edmonton, Canada, in 1918. The work is in charge of Miss Mabel Patrick, an Honours Graduate in Household Economics of the University of Toronto.

Miss Frances Stern, the author of "Food for the Worker," who is in Paris with the Red Cross, writes: "Here in the land for which we have conserved, there is not a great deal of popular education along the food line, and a group of men are trying to introduce home economics into the schools and to present it in some popular form to the people. Dr. Marcel Labbe, a prominent physician here, is very much interested, and is anxious to get material telling how the United States has done things.

"Miss Harris of the Framingham Normal School is working with me, and we are hoping to do a little educational work here."

Miss Mary Gearing, on leave of absence from the University of Texas, is with the Young Women's Christian Association as Associate Executive, Health Division, Bureau of Social Education. Her special task is to coördinate home economics with the general health program of the National Y. W. C. A.

At the Battle Creek School of Home Economics and Dietetics, a new sorority of dietitians—the Alpha Theta Pi—has been founded. Its members are already scattered through different parts of the United States and several are in France. Miss Lenna Cooper, director of the school, is an honorary member. It is hoped that this organization may coöperate with the American Dietetic Association in advancing dietetic work and furthering investigation in this line.

Miss Alice Ravenhill has resigned from her position at the Utah Agricultural College, Logan, Utah, after a prolonged attack of influenza and pneumonia, and has returned to her home in Victoria to recuperate. She plans after her complete recovery to give her time chiefly to lecturing, in which she has won a unique place among home economics workers.

The twelfth annual meeting of the American Home Economics Association will be held at Blue Ridge, N. C., June 23-28.